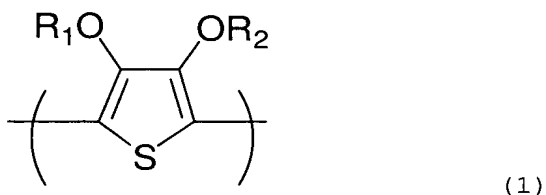


WHAT IS CLAIMED IS:

1. A process for preparing conductive polythiophenes comprised of structural units of the general formula (1):

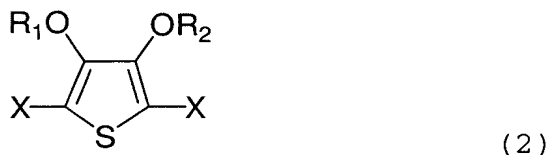
5



where R_1 and R_2 independently represent hydrogen or a $C_1\sim C_4$ alkyl group, or together represent an optionally substituted $C_1\sim C_4$ alkylene group, preferably an optionally alkyl-substituted methylene group, an optionally $C_1\sim C_4$ alky- or phenyl-substituted 1,2-ethylene group, a 1,3-propylene group or a 1,2-cyclohexylene group;

which are prepared from 2,5-dihalothiophene of the general formula (2):

15



where R_1 and R_2 are described as above in the general formula (1), and X is a halogen atom selected from Cl, Br and I;

20 in the presence of an acid catalyst.

2. A process for preparing polythiophenes according to claim 1, wherein R_1 and R_2 independently represent methylene, 1,2-ethylene or 1,3-propylene.

5 3. A process for preparing polythiophene according to claim 1 or 2, wherein the acid catalyst is a Lewis acid, protic acid, organic acid or polymeric acid.

10 4. A process for preparing polythiophenes according to claim 3, wherein the Lewis acid catalyst is a boron salt, zinc salt, tin salt or iron salt; the protic acid catalyst is phosphoric acid, sulfuric acid, nitric acid, hypochlorous acid, HF, HCl, HBr or HI; the organic acid catalyst is carboxylic acid or sulfonic acid; polymeric acid catalyst is
15 polystyrenesulfonic acid, polyacrylic acid, polymethacrylic acid, polymaleic acid or polyvinylsulfonic acid; and the catalyst is used individually or as a mixture of two or more.

20 5. A process for preparing polythiophenes according to claim 4, wherein the boron salt is boron trifluoride, boron trifluoride dihydrate, boron trifluoride diethyl etherate, boron trifluoride-alcohol complex, boron trifluoride-methyl sulfide complex, boron trifluoride-phosphoric acid complex, boron trichloride, boron trichloride-methyl sulfide complex,
25 boron tribromide, or boron tribromide-methyl sulfide complex,

used individually or as a mixture of two or more.

6. A process for preparing polythiophenes according to any one of claims 1 to 5, wherein the solvent is a C₆-C₂₀ aliphatic or aromatic hydrocarbon, halogen-containing hydrocarbon, ketone, ether, C₂-C₂₀ alcohol, sulfoxide, amide and water, or a mixture thereof.

7. A process for preparing polythiophene according to claim 6, where the solvent is a C₆-C₂₀ aliphatic or aromatic hydrocarbon including alkanes, alkylbenzenes and phenol; halogen-containing hydrocarbon including alkanes and halobenzenes containing halogen substituent(s); ketone including acetone, propanone, butanone, pentanone, hexanone, heptanone, octanone and acetophenone; ether including diethyl ether, tetrahydrofuran (THF), dipropyl ether, dibutyl ether, methyl butyl ether, diphenyl ether, dióxane, diglyme, diethylene glycol and ethylene glycol (EG); sulfoxide including dimethylsulfoxide (DMSO); amide including N,N-dimethylformamide (DMF), N-methylacetamide (NMAA), N,N-dimethylacetamide (DMA), N-methylpropionamide (NMPA) and N-methylpyrrolidinone (NMP), used either individually or as a mixture of two or more.